

# W5YI

## America's Oldest Ham Radio Newsletter REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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## FCC Issues Order on Low Frequency, 5 MHz and 2.4 GHz Ham Bands

*Declines to grant LF allocation; gives five channels at 5 MHz, ...makes 2400-2402 MHz Primary*

The American Radio Relay League filed three *Petitions for Rulemaking* which resulted in a May 2, 2002, *Notice of Proposed Rulemaking* (NPRM). On May 14, 2003, the FCC released a final *Report and Order* in ET Docket No. 02-98. The R&O addressed new ham bands at 136 kHz and 5 MHz and a change in allocation status at 2400-2402 MHz.

The final FCC action was quite different than requested by the ARRL ...and what the Commission had earlier proposed!

The first of these petitions (RM-9404, filed October 22, 1998) requested that a secondary allocation to the Amateur Service be made in the 135.7-137.8 kHz and 160-190 kHz bands to permit experimentation in the LF frequency range.

The second petition (RM-10209, filed August 13, 2001) requested a secondary 150 kHz wide amateur allocation in the 5 MHz (60 meter) band to enhance amateur emergency communications and experimentation when propagation conditions are not favorable in the 3500 kHz (80 meter) and 7000 kHz (40 meter) bands.

The third petition (RM-9949, filed July 17, 2000) requested an upgrade to primary status for the existing secondary 13-cm amateur allocation and a new primary allocation for the amateur-satellite service in the 2400-2402 MHz band to protect existing amateur operations from future commercial systems which may utilize the band.

Even though the FCC had proposed in its

NPRM to grant a 136.7-138.8 kHz Amateur Service allocation, comments from power companies strongly believed the Amateur allocation would disrupt power line communications (PLC) used by electrical utilities to control the power grid.

The 150 kHz wide requested (and FCC proposed) 5 MHz ham band became five low power discrete 2.8-kHz-wide SSB voice channels at 5332 kHz, 5348 kHz, 5368 kHz, 5373 kHz, and 5405 kHz.

The FCC did agree, however, to elevate the Amateur Service, but not the Amateur-Satellite Service, to primary status at 2400 to 2402 MHz. The changes go into effect 30 days after publication in *The Federal Register* ...about July 1st.

The 26-page *Report and Order* is available on the FCC Website at: <[http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/FCC-03-105A1.doc](http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-03-105A1.doc)>. Here are the details:

### 135.7-137.8 kHz and 160-190 kHz bands

#### Background

The band 130-148.5 and 160-190 kHz in the U.S. is allocated to both Federal and non-Federal Government users. In addition, the LF spectrum is used by unlicensed devices. These systems do not have any allocation status, but are authorized to operate at up to one watt total input power under Part 15 Rules on an unprotected, non-interference



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basis with respect to all other users.

Section 15.217 permits use of the 160-190 kHz band for general unlicensed operations. Section 15.113 permits Power Line Carrier ("PLC") systems on power transmission lines for communications important to the reliability and security of electric service to the public in the 10-1490 kHz band. PLC systems are used to trip protection circuits if a fault, such as a downed power line, is detected in the power grid.

In the fall of 1998, the ARAL asked the FCC to create a domestic secondary Low Frequency (LF) allocation for the Amateur Service at 135.7-137.8 kHz and 160-190 kHz.

The FCC said it had previously declined a similar request for an amateur allocation in the 160-190 kHz band because of concerns about interference to the PLCs.

The League said that there is no Amateur Service LF allocation and such an allocation would enhance technical self-training in areas such as Morse Code, digital communications and experimentation in LF communications.

ARAL pointed out that numerous amateur radio and non-amateur radio operators in the U. S. are using the 160-190 kHz band on an unlicensed basis under Part 15 rules but that power and antenna limitations preclude or inhibit effective experimentation.

The League asked for more liberal operating conditions, "...such as an output power limit of 200 W peak envelope power (PEP) and 2 W effective isotropic radiated power."

Amateurs using Low Frequency CW, RTTY or pulse transmissions can often achieve distances of 100 to 300 miles under favorable propagation conditions. With an allowable power of 5W ERP, they can achieve transcontinental communications.

Regarding sharing with Part 15 PLC operations, ARAL argued that such operations have no allocation status and thus do not merit protection from services with allocation status. Nevertheless, ARAL believes that the interference potential of LF amateur operations to PLCs would be minimal.

The ARAL petition pointed out that although there is no international allocation for the Amateur Service in these bands, several European countries are operating in the 135.7-137.8 kHz band with 1 W effective radiated power (ERP).

Low Frequency amateur operation was authorized at 136 kHz on January 30, 1998 in the United Kingdom. Other CEPT countries soon followed. These allocations resulted in the development of LF equipment and transmission systems by radio amateurs. As a result, communication was established between Canada and the U.K. on September 10, 2000, using one-watt Effective Radiated Power (ERP).

On February 4, 1999, twelve members of AMRAD

(the *Amateur Radio Research and Development Corporation*) were granted an experimental Part 5 license, WA2XTF, to operate on 137.75 kHz with a power level of one-watt ERP. This license enabled these individuals to construct transmitting and receiving equipment and antennas, to study LF propagation, and to research modulation and weak-signal reception methods applicable to this frequency band.

The FCC initially agreed with the ARAL in the *Notice of Proposed Rulemaking* and said they would allocate the 135.7-137.8 kHz band to the Amateur Service on a secondary basis.

The Commission indicated that the allocation appeared to be acceptable because the incumbent use of the 135.7-137.8 kHz band appeared to be very light, and thus a secondary Amateur Service allocation in this band would likely raise few interference concerns.

The Commission proposed to limit amateur stations operating in the 135.7-137.8 kHz band to an effective isotropically radiated power (EIRP) of 1 W and a transmission bandwidth of 100 Hz.

No restrictions on antenna size or design for amateur stations in this band were proposed because such restrictions would inhibit experimentation. The FCC also proposed to limit access to this band to amateur operators with General, Advanced or Amateur Extra Class licenses.

"This allocation will allow amateur radio operators the ability to experiment more freely with propagation, antenna design and antenna construction", the FCC said in the NPRM.

## Comments

In general, amateurs supported the creation of a new secondary allocation for the Amateur Service in the low frequency portion of the band.

Utility companies, however, vehemently opposed allocating the 135.7-137.8 kHz and 160-190 kHz bands to the Amateur Service on a secondary basis. They collectively commented that PLC systems are critical to the proper functioning of the national power grid and amateur operations could cause widespread interference and power outages.

Furthermore, many of the utilities indicated that the new amateur allocation would give amateurs the right to demand that interference from a PLC system be resolved by the power companies. This would force utilities to retune or replace their PLCs to avoid causing interference to amateur operators.

## FCC decision at 136 kHz

The FCC agreed that amateur experimentation in the 135.7-137.8 kHz and 160-190 kHz portions of the LF spectrum could serve to increase the pool of individuals having knowledge of LF transmissions, but concluded that such operations would pose the potential for harmful interference to systems protecting and controlling the



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national power grid.

"In evaluating whether new operations should be added to a band, licensed or not, we must consider the potential for interference conflicts between the operations. While unlicensed PLC operations have no protection status, they provide a vital public service. Therefore, we disagree with amateur comments that we should not consider the impact on unlicensed operations when making spectrum allocation decisions."

"We believe that the utility companies have raised a valid concern that an allocation to the Amateur Service could result in the need for PLCs to modify or cease their operations to avoid causing interference to amateurs."

The FCC reversed its earlier decision and said a new amateur LF allocation is not justified "...when balanced against the greater public interest of an interference-free power grid."

"We will not jeopardize the reliability of electrical service to the public," the FCC added. "Accordingly, we decline to make an allocation to the Amateur Service in the LF spectrum at this time. Amateurs may still make use of the 160-190 kHz band under our Part 15 rules, which are much more restrictive, and therefore more protective of PLCs, than the limits earlier proposed in the NPRM."

The FCC said there were approximately 4900 PLC systems in operation in 3000 locations in the United States in the 160-190 kHz band.

ARAL Chief Executive Officer David Sumner, K1ZZ said "We are disappointed that the FCC could not see its way clear to providing even a narrow LF allocation to the Amateur Service, given earlier encouraging signs and the general trend in other countries."

## 5250-5400 kHz (60 meter) Band

### Background

There is currently no international Amateur Service allocation at 5250-5400 kHz. In the United States, this band is allocated to the fixed service on a primary basis to the Federal Government and used ship-to-shore and point-to-point communications.

On January 8, 1999, the FCC granted an experimental license to the ARAL for 15 stations to compare communications reliability between the 3500-4000 kHz, 5100-5450 kHz and 7000-7300 kHz bands.

Two years ago, the League filed a *Petition for Rule Making* (assigned RM-10209) requesting a domestic 5 MHz secondary allocation in the 5250-5400 kHz band. It said the Amateur Service needed 150 kilohertz of 5 MHz spectrum "...to fill the ionospheric propagation gap" between the propagation paths provided by allocations in the 80 and 40 meter bands.

ARAL contends this "propagation gap" occasionally interrupts emergency communications by amateur radio operators between the U. S. and the Caribbean islands during hurricanes and severe weather disasters.

The League said the 1999 experimental operations confirmed that amateur stations can co-exist with incumbent operations without causing harmful interference.

The FCC agreed and tentatively concluded that the Amateur Service would benefit from a secondary allocation in the 5250-5400 kHz band and proposed to establish such an allocation with the power level set at up to 1500 W PEP as requested by ARAL.

In making this proposal, the Commission stated that it appears that amateur radio operators should be able to avoid interference to primary operations in this band due to the limited numbers of primary assignments. In addition, the Commission indicated that the operational protocol of "listen before transmit" employed by amateur radio operators could further minimize interference.

### Comments

The FCC received more than 200 comments – mostly from radioamateurs – almost all supporting the new secondary allocation at 5250-5400 kHz for emergency communication and experimentation when the 80 and 40 meter bands were not available.

Many of the commenters support output power levels between 100-250 W PEP, others recommend ARRL's proposed 1500 W PEP. Several wanted the band divided according to transmission types. Those opposing "sub-banding" claim that much of the CW and data sub-bands in other amateur allocations are underutilized, and that many other nations are eliminating their sub-bands.

The United Power Line Council (UPLC) opposed the 5 MHz amateur allocation since the band is one of a number of frequency bands that may be used to provide high speed Internet service via power line carrier systems ...also known as B.L. or "Broadband over Power Lines." It asked that the Commission defer action until the impact on B.L. can be fully assessed.

The Power Line Carrier Association (PLCA) agreed with UPLC's arguments and contends that its members would need to notch out the 5250-5400 kHz band if amateur operations are permitted in that band.

The Homeplug Powering Alliance asked that a "safe harbor" be granted for 10 years for consumer equipment currently meeting Part 15 standards. Under the "safe harbor," Part 15 equipment operating in accordance with existing rules would be deemed as not causing interference to licensed services. Homeplug said it had "notched out" all of the other amateur bands.

ARRL said that "no Part 15 manufacturer is entitled to oppose an allocation to a licensed radio service based on future deployment of an unlicensed device."

The biggest objection came from the National Telecommunication and Information Administration, the White House advisor on telecommunications matters. NTIA stated that the 5250-5400 kHz band "...is extensively used by federal agencies, and that they need immediate access to these HF frequencies in times of emergency."

*Continued on Page 8 (FCC Order, ET Docket 02-98)*



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## More Amateur-Unlicensed Device Sharing Proposed

*"Our action today furthers twin goals of the Spectrum Policy Task Force: promoting spectrum access and furthering development of unlicensed technologies." ...Michael K. Powell, FCC chairman*

The FCC on May 15<sup>th</sup>, proposed to make available an additional 255 megahertz of spectrum—from 5.470 to 5.725 GHz—for unlicensed devices. The Commission's action comes in response to a *Petition for Rule Making* from the Wi-Fi Alliance.

Formerly known as WECA (the Wireless Ethernet Compatibility Alliance), the Wi-Fi Alliance is a non-profit international association formed in 1999 to certify interoperability of wireless Local Area Network products based on the IEEE 802.11 specification. Currently the Wi-Fi Alliance has 183 member companies from around the world, and 698 products have received Wi-Fi certification since certification began in March of 2000.

The NPRM proposes to nearly double the amount of spectrum available for unlicensed operations in the 5GHz band.

A Spectrum Policy Task Force report, released by the Commission in November, calls for the FCC to move away from a "command-and-control" model of managing spectrum rights, in which spectrum uses are limited based on regulatory decisions, to a combination of an unlicensed "commons" model and a licensed "exclusive-use" model, in which licensees have exclusive and transferable flexible use rights.

The FCC wants devices using this spectrum to deploy dynamic frequency selection (DFS). DFS ensures that RLANs (Radio Local Area Networks) do not interfere with existing government radar systems. Before operation, DFS chooses an operating channel at random and checks whether it is currently being used. During operation DFS continues to "listen" for other users.

"Moreover, we propose to forego exclusive-use licensing, allowing market forces to determine how the band will be used and providing potential users the greatest possible flexibility," Powell said.

The proposed rules were expected since the FCC, the NTIA (National Telecommunications and Information Administration), NASA (National Aeronautics and Space Administration) and the DOJ (Department of Defense) reached an agreement earlier this year on use of the 5 GHz band for unlicensed devices.

Amateur Radio has a secondary allocation at 5.650 to 5.925 GHz which it shares with government and non-government radars and satellite uplinks. "If the FCC goes through with the proposal—and it appears likely that it will—Amateur Radio will be left with a 25-MHz segment at 5 GHz—5.825 to 5.850 GHz—that's not already earmarked for unlicensed services," the ARRL said.

Global use of the 5 GHz band is on the agenda to be discussed at WRC-2003, the World Radiocommunications Conference that begins June 9 in Geneva and lasts until July 4.

## Amateur Radio Station Call Signs

...sequentially issued as of the first of June 1, 2003:

District	Extra	Advanced	Tech./General/Novice
0	AB0YG	KI0SN	→ KC0QCM
1	AB1CS	KE1ME	→ KB1KAR
2	AB2QQ	KG2RS	→ KC2LMI
3	AB3AV	KF3EH	→ KB3JUC
4	AG4ZG	KV4GY	→ KI4ANW
5	AD5OB	KM5XZ	→ KD5WTS
6	AE6MQ	KR6FE	→ KG6QQZ
7	AC7YT	KK7XQ	→ KD7WCN
8	AB8RA	KI8KG	→ KC8WTY
9	AB9HI	KG9QW	→ KC9EFN
Hawaii	→	AH6RQ	NH7QM WH6DGX
Alaska	→	AL7RS	KL1MV WL7CVS
Virgin Isl.	→	KP2CT	NP2MP WP2AIS
Puerto Rico	→	KP3BN	WP3XT WP4NPC

[Source: FCC Amateur Service Database, Washington, DC]

## Ohio Ham Operator Hit with \$12,000 fine by FCC

On May 6<sup>th</sup>, Ronald E. Sauer, WE8E (Bedford Heights, Ohio) was socked with a \$12,000 fine by the FCC's Detroit Enforcement Bureau Office. He was charged with willful or malicious interference, transmitting music; and transmitting without using his call sign.

On January 24, 2003, the Detroit Office received information from RAC (Radio Amateurs of Canada) and the Cuyahoga (Ohio) Amateur Radio Society (CARS) that deliberate jamming was occurring daily to the Trans Provincial Net, a Canadian amateur net operating on 7.055.

Tracking down the signal source involved mobile direction-finding work by three CARS members, who passed along their findings to the FCC's Detroit Office.

On January 25 and 26, 2003, the FCC's High Frequency Direction Finding (HFDF) Group observed music being played and deliberate jamming occurring on 7.055 MHz. The long distance direction finding bearings indicated that the source of the music and jamming was coming from a station operating in the Cleveland area.

On January 28 and 31, 2003, an agent from the Detroit Office observed a station deliberately jamming and playing music on 7.055 MHz. The agent conducted an inspection of the residence of Ronald E. Sauer, WE8E, who admitted that he had been playing music and deliberately jamming 7.055 MHz. He further admitted to jamming and playing music on this frequency on previous days.

The FCC said its Forfeiture Guidelines sets the base fine at \$7,000 for causing interference, \$4,000 for transmitting unauthorized emissions and, \$1,000 for failure to provide station identification ...a \$12,000 monetary forfeiture. Sauer was ordered to pay the fine within 30 days or provide information about his inability to pay.



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## CUTTING EDGE TECHNOLOGY

**A large chunk of Disney movies will not make it to Blockbuster and other video stores.** In a bid to increase home viewing of its movies, Disney and Flexplay Technologies are teaming up to produce DVDs that become unreadable two days after being opened.

The Walt Disney home video company (Buena Vista Home Entertainment) will begin renting "self-destructing" DVDs this August that after 48 hours become unplayable and do not have to be returned.

The disposable discs stop working when a chemical process similar to rusting makes them unreadable. The EZ-D format DVDs start off red, but when they are taken out of the package, exposure to oxygen turns the coating black and makes it impenetrable by a DVD laser.

Disney says the "throw-away" DVDs are designed to eliminate late fees and the inconvenience of visiting a video rental store.

## EMERGING COMMUNICATIONS

**Long distance telephone charges may become a thing of the past says the New York Times.** The future appears to be in flat rate telephone plans that include all long distance costs.

MCI started it a year ago and now all major telephone companies — including AT&T, BellSouth, Qwest Communications, SBC Communications, Verizon and (soon) Sprint — have programs that allow customers in some states to make unlimited local and national calls for one flat monthly price of about \$50 to \$60 ...pretty much in line with what the FCC says the average American household now spends on local and long-distance calling.

Flat rate wireline calling is the latest industry strategy that is facing a loss of market share caused by Internet and cell-phone calling ...and those who swap their second telephone line for a high-speed Internet connection. Prices are falling, but so far, phone companies are not "making it up on volume" ...which was the plan.

Unlimited access plans stems from the Telecommunications Act of 1996, which allowed local phone companies to enter

the long-distance market. A company's expense in routing a call depends very little on the distance the call travels, but largely on whether a call needs to travel across lines owned by other phone companies and the access fees charged.

In most cases, calling a friend across the country now costs your phone company about as much as calling your next-door neighbor.

**Sunnyvale, CA-based Juniper Networks will offer a "hot spot in a box" bundle,** targeted at telephone, broadband and cell phone service providers that offer public Wi-Fi access. The \$800 package includes all the hardware, software and technical know-how necessary to build a single subscription wireless network. The company hopes to tap into the burgeoning Wi-Fi market among broadband providers, who spent \$500 million dollars last year to add "hotspots" to their networks, by offering hardware at less than half the cost of competitors such as Cisco. Market analysts expect the investment in Wi-Fi to continue to rise in the coming years, as large D.L. and cable providers seek to maintain market share over smaller ISPs. (Source: CNET News)

**How much harmful RF interference can you stand?** The FCC expects to begin debating a concept called "interference temperature" by year-end. The debate could affect a large number of incumbent spectrum users in any number of bands.

Last fall's Spectrum Policy Task Force Report identified interference temperature as one of several possible spectrum management reforms. The concept involves putting a ceiling on the noise environment in which receivers would be required to operate.

Any user that operated below that threshold could do so with far more flexibility, allowing unlicensed operators to use licensed spectrum.

The trick is to find a safe temperature for each band. Incumbent spectrum users already have complained that no reliable science exists to make that determination.

## COMPUTERS & SOFTWARE

**Since Microsoft is the biggest software company, virus writers target their products.** Microsoft has launched a new anti-virus site which gives

information on viruses that target Windows products and operating systems. The Microsoft Virus Information Web site can be found at: <[www.microsoft.com/technet/security/virus/alerts/default.asp](http://www.microsoft.com/technet/security/virus/alerts/default.asp)>.

**A Reuters news release datelined Karachi, Pakistan, contends that ninety-percent of all music CD's, DVD movies and software in Pakistan are pirated.** For example, Microsoft Office (which sells for \$390) is available "...on three CDs for as little as 75 rupees (\$1.30)." Laws are there to fight the problem, but are not enforced. Pakistani marketers contend they are "...providing a service for the poor."

## GADGETS & GIZMOS

**Worn like eye glasses, I-glasses HRV are a small, portable, high resolution video headset** that connects to your camcorder, VCR, DVD, video games, television or other video source. It is like a personal, portable movie theater — that only you can see.

These futuristic-looking glasses provide a giant screen image in front of your eyes—equal to a 70-inch television from 13 feet away. Resolution is 800x600 pixels ...twice that of a typical television screen. Comes with two separate video cables, RCA and S-Video, and has volume control buttons to adjust audio to a desired level.

Onscreen programming functions allow you to make fine adjustments to the way the video is being displayed, including brightness, contrast, color hue and image position. Introduced at the NAB Convention in Las Vegas on April 7, 2003. Lists for \$699, although street price is less. More at: <[www.i-glassesstore.com](http://www.i-glassesstore.com)>.

**No more tiny keyboards, full-size virtual keyboards are on the way!** Projected images of the real thing let typists compose their sentences on any flat surface.

Canesta of San Jose, California, said its chipset could allow other companies to incorporate virtual keyboards into PDAs, smart phones and other portable devices later on this year.

The keyboard even emits a tactile "click" when a projected key is "pressed." It also transmits an infrared beam that detects the position and motion of a typist's hands.



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## INTERNET & WORLD WIDE WEB

**The U.S. Dept. of Commerce says U.S. retail sales over the Internet grew by 25.9 percent compared to the same quarter a year earlier** setting a record level for a non-holiday quarter of nearly \$12 billion.

As expected, sales were well off the fourth quarter of 2002, when they set a record of \$13.7 billion.

E-commerce sales in the first quarter as a percentage of overall sales are still minuscule ...only 1.5 percent of total retail purchases ...compared to 1.3 percent for the same period in 2002.

In total, the Census Bureau reported that e-tail sales for all of 2002 came in at \$45 billion. Sales data can be found at < [www.census.gov/mrts/www/mrts.html](http://www.census.gov/mrts/www/mrts.html) > and < [www.census.gov/estats](http://www.census.gov/estats) >.

## WASHINGTON WHISPERS

**Unsolicited e-mail now makes up about half of all e-mail.** The Federal Trade Commission estimates that two out of three of these messages contain misleading information of some sort.

"The Reduction in Distribution of Spam Act" was introduced into Congress May 23<sup>rd</sup> and quick passage is expected. The bill, sponsored by North Carolina Rep. Richard Burr, calls big fines and up to two years imprisonment for those who hide their identities or use deceptive tactics.

The RID Spam Act also requires bulk e-mailers to disclose both their e-mail and street addresses and permit the recipient to unsubscribe. Recipients may not be contacted again until a three-year period has elapsed.

Most recipients agree that spam is randomly sent commercial e-mail promoting pornography or unwanted business opportunities and products.

Unsolicited commercial e-mail must be identified as an advertisement or solicitation and pornographic e-mail must clearly be identified as such.

False or misleading header information would be prohibited. The bill also makes it illegal to "harvest" e-mail addresses by automatically scanning Web sites.

Internet service providers (ISPs) will be able to sue in federal court for damages of \$10 for each e-mail sent to someone who "opted out." Violators face up to \$1.5 million in fines and two years in prison.

Billy Tauzin (R-Louisiana), the powerful Chairman of Commerce is a co-sponsor. And the bill has the backing of Microsoft Corp. and the Direct Marketing Association.

The Senate is working on a similar bill introduced by Conrad Burns (R-Montana) and Ron Wyden (D-Oregon.)

**FCC data show 67% of Native Americans have basic phone service, up from 47% ten years ago,** but still nowhere near the non-Indian American rate of 95%. Congress and the Bush Administration are looking into subsidizing Indian telecom services.

**The \$2.25 billion federal E-rate program, which was established as part of the Telecommunications Act of 1996,** gives schools and libraries in impoverished regions discounts of up to 90 percent on telecommunications and Internet services. The program is partly financed by a universal service fee tacked onto consumer's telephone bills.

E-rate abuse is the subject of at least 30 ongoing state and federal investigations totaling \$200 million in questionable funding. Problems range from sloppy paperwork to over-billing for services provided.

**The FCC has an "incestuous" relationship with the industries it regulates, the Center for Public Integrity charged in a report released May 22.**

The report is divided into three sections: the data the FCC relies upon to make its key decisions, the number of industry-sponsored trips taken by commissioners and staff over the past eight years, and the media ownership concentration in the hometowns of the five commissioners.

The center found "a disturbing dependence by the FCC on outside information providers," the report said. "The agency should have the resources and staff to collect its own information."

The report also found that over the last eight years, FCC officials have taken 2,500 trips that cost a total of almost \$2.8 million, with the telecommunications and broadcast industries footing the bill.

The biggest industry sponsor, the Na-

tional Association of Broadcasters, paid nearly \$200,000 to bring 206 FCC officials to its events.

Detailed information on the trips, including a searchable database, is online at < [www.openairwaves.org/telecom](http://www.openairwaves.org/telecom) >.

The center also found that of the 203 commercial radio stations in the five home towns, 50 are owned by four publicly traded out-of-state big radio companies and 25 of those are owned by Clear Channel Communications.

Four companies control the five cable stations in their hometowns and of the 20 network affiliates in those towns, 14 are owned by out-of-state companies.

The Center for Public Integrity also says the three largest local phone companies control 83 percent of home telephone lines. The top two long distance carriers control 67 percent of that market. The four biggest cellular phone companies have 64 percent of the wireless market. The five largest cable companies pipe programming to 74 percent of the cable subscribers nationwide.

**Rep. Rush Holt (D-NJ) has introduced legislation to require all voting machines to produce a voter-verified paper trail.**

The Voter Confidence and Increased Accessibility Act of 2003 would require all voting machines to produce an actual paper record by 2004 that voters can view to check the accuracy of their votes and that election officials can use to verify votes in the event of a computer malfunction, hacking, or other irregularity.

Holt says "States and localities are purchasing computer-voting systems that suffer from a serious flaw; voters and election officials have no way of knowing whether the computers are counting votes properly. Current law does nothing to protect the integrity of our elections against computer malfunction, computer hackers, or any other potential irregularities."

## AMATEUR RADIO

### FCC Amateur Radio Enforcement

**The ARRL Auxiliary has been formally asked to assist the FCC over the next six months (through October) "...in identifying any unlicensed operation in the Ten Meter**



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**Amateur Band**, whether from business entities including trucking companies, truckers or other individuals operating domestically."

The FCC did not request direction finding, but said it "...would appreciate, where possible, the names and cities of the operators, and license plate numbers and state if from a vehicle."

The request was made pursuant to the "Amended Agreement Between the Field Operations Bureau of the Federal Communications Commission and the American Radio Relay League, Inc. Regarding the Use of Amateur Volunteers."

**Anthony G. Latin, W4NSG (Ocala, FL)** was issued an "Advisory Notice" by the FCC on April 3<sup>rd</sup> concerning using "...enhanced Single Sideband" emissions, with a bandwidth wider than necessary and contrary to good engineering practice...." This notice also went to Paul B. Christensen, W9AC (Jacksonville, FL), Sareno J. Salerno, W2ONV (Saddle Brook, NJ) and John M. Anning, NU9N (Dixon, IL).

On May 6th, the FCC withdrew the letter sent to W4NSG saying "...that letter was issued to you in error...." The FCC apologized "...for whatever inconvenience that letter may have caused...."

Since the notices sent to W9AC, W2ONV and NU9N were not withdrawn, it is assumed that "enhanced Single Sideband" is still frowned upon by the FCC and that W4NSG was not using that mode.

**David J. Paulino KG6OAW (and GMRS license WPVX 703) of Temecula, CA** has been warned by the FCC that it has monitoring information indicating "...that you were deliberately interfering with the CLARA repeater system on February 24, 2003 from your vehicle bearing California tag number 4S14545. The CLARA repeater system operates on 144.620/145.220 MHz."

He was advised that "...any other [deliberate interference], Amateur or otherwise, will subject you to revocation and suspension proceedings, as well as a monetary forfeiture. Fines normally range from \$7,500 to \$10,000."

**Richard L. Norris, K6CJE (Winnetka, CA)** has been notified that the FCC is looking into all the club call signs he holds "... 4 of which were granted on the same day."

The FCC wants Norris "...to provide

justification within 30 days as to the need for each of these call signs. Where you are claiming that they are used by clubs, provide a list of the names, addresses and telephone numbers of the members, meeting times and dates within the past year, proposed meeting times and locations within the coming year, and copies of minutes, if any, taken at meetings within the past three months for each club."

Norris holds at least 7 club call signs: (KF6USQ American Medical Response, KF6USO Four Times Daily Ham Club, K6PFD Lennybird Amateur Radio, K6LEE Mercury Amateur Radio, KF6USN Non Para Ora Club, KF6USR Pasadena Police Amateur Radio and W6FV San Fernando Valley UHF Club.)

The FCC said "You may request cancellation of any unneeded or inactive club call signs." The FCC said it will cancel the club call signs if he does not satisfactorily respond.

**Thomas G. DeLasaux, WA6SEK, (Stockton, CA)** was notified by the FCC on September 9, 2002, "...that it had come to our attention that you are operating uncoordinated repeaters on 224.660 and 441.275 MHz. Such operation is causing interference to coordinated repeaters on the same frequencies in your area."

"We have reviewed your response as well as information provided by the Northern Amateur Relay Council of California. You are unable to demonstrate current coordination for the 224.660 and 441.275 MHz repeater operations. Section 97.205 of the Commission's rules states that where there is interference between a coordinated and an uncoordinated repeater, 'the licensee of the uncoordinated repeater has primary responsibility to resolve the interference'."

The FCC advised that "Until you are able to demonstrate current coordination for your 224.660 and 441.275 MHz repeater operation, you bear the primary responsibility to prevent interference to the coordinated repeaters." DeLasaux is to advise the FCC within 20 days of the "...specific steps you are taking to resolve the interference issues."

**Thomas F. Hervert, N9EAW (West Allis, WI)** has been warned that the FCC has information that he has been using the K9JAC repeater, operating on 146.250/146.850 MHz, after his license expired February 16, 2003.

A renewal application was not filed until March 24, 2003. "Not having filed a timely application, you have no authority to operate until a decision is made on your renewal application," FCC said.

Hervert is to advise the Commission within 20 days of "...any complaints regarding your operation on the K9JAC and K9JAC repeaters?" Copies of the complaints are to be forwarded to the FCC if the complaints were in writing. "If they were verbal, please describe them. The information you submit will be used to determine what action to take on your renewal application."

**William E. Jannisch, KD7JDM (Conner, MT)** has been asked to provide a response to the FCC within 20 days concerning a complaint it received about the operation of his station on February 11, 2002, on 144.900 MHz.

The FCC did not say what the complaint was, but that it had a tape recording of his alleged transmissions which could be forwarded to him.

The FCC also said Jannisch's current address was incorrect in the FCC's database of radioamateurs. "Please take steps to correct that as soon as possible."

**Drew B. Feldman (Los Angeles, CA)** has been asked to provide additional information concerning his Technician Class license application.

On March 18, 2003, the FCC set aside Feldman's Technician Class license KG6PFC based on complaints relating to allegations of deliberate interference.

The FCC said it had information indicating that "...the Claremont Amateur Repeater Association obtained a restraining order against you that prohibited your operation on their repeater system."

"Information also indicates that you have participated in deliberate interference to the Western Amateur Linking Association" and that "...you were recently incarcerated on Los Angeles."

Feldman is to provide the FCC with copies of any restraining orders, court orders or complaints regarding the operation of his Amateur Radio station or involving individuals. The Commission also wants "...copies of court orders, judgments or other documents, if any, involving your incarceration, confinement, or custody."

The FCC said the information is needed to make a determination on his application to be a Technician Class licensee.



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*Continued from page 3 (FCC Order, ET Docket 02-98)*

To accommodate some amateur operations in this band, NTIA subsequently proposed that five specific frequencies, 5332 kHz, 5348 kHz, 5368 kHz, 5373 kHz and 5405 kHz, be made available to the Amateur Service on a secondary basis. NTIA further proposed that the amateur transmissions on these frequencies be limited to single sideband (upper side band), suppressed carrier (SSB-SC) voice (emission designator 2K8J3E) centered around the above frequencies, and must not exceed the equivalent of 50 W PEP transmitter output power into an antenna with a gain of 0 dBd. NTIA explains that these limited frequencies and technical limits would permit sharing in this limited spectrum.

## Decision

The FCC agreed that a 5 MHz amateur allocation would be useful for completing disaster communications links and thanked the amateur community for their efforts in this regard.

"At the same time, since the majority of the affected users are Federal Government licensees with homeland security responsibilities, we give considerable weight to the concerns NTIA has expressed about the potential for interference to these users. Thus, we conclude that it is not reasonable to grant ARRL's original request for the whole of the 5250- 5400 kHz band."

The FCC noted that NTIA had reviewed its assignments and found 5 channels that are lightly used and could be used on a secondary basis by amateur stations.

"While we recognize that these five channels will not give the Amateur Service the 150 kilohertz of spectrum in the 5000 kHz range it originally asked for or the flexibility to use multiple transmission modes, this appears to be the best compromise available to give the Amateur Service access to new spectrum while assuring the Federal Government agencies that their use is protected."

"Accordingly, we are amending our rules to provide a secondary allocation to the Amateur Service on the channels 5332 kHz, 5348 kHz, 5368 kHz, 5373 kHz and 5405 kHz as specified by NTIA, and to require that amateur operations be limited to an effective radiated power (e.r.p.) of 50 W, and emission type 2K8J3E, upper sideband voice transmission only centered on each frequency."

"For the purpose of computing e.r.p. the transmitter peak envelope power will be multiplied with the antenna gain relative to a dipole or the equivalent calculation in decibels. A half wave dipole antenna will be presumed to have a gain of 0 dBd. Licensees using other antennas must maintain in their station records either manufacturer data on the antenna gain or calculations of the antenna gain."

As originally proposed, the FCC approved the use of these channels by General, Advanced and Amateur Extra Class licensees.

The FCC denied the UPLC and PLCA request to de-

lay action on allocating the band as well as Homeplug's request for a 10-year safe harbor.

"While the new amateur privileges at 5 MHz are not as flexible as we had hoped, we recognize that much has changed since the ARRL petition for rulemaking was submitted to the FCC in the summer of 2001," ARRL CEO Dave Sumner said. "Federal agencies with homeland security responsibilities have renewed interest in HF radio-communication."

## 2400-2402 MHz (13-cm) Band

### Background

Internationally, in all three ITU Regions, the 2300-2450 MHz band is allocated on a secondary basis to the Amateur Service. The primary allocation is to the Fixed, Mobile and Radiolocation (radar) Services for both Government and Non-Government use. The U.S. Federal-Government allocation is used, to a limited extent, by the military for intelligence gathering.

Further, in all three ITU Regions, Industrial, Scientific and Medical (Part 18 "ISM") devices operate in the 2400-2500 MHz band and all radio services must accept interference caused by ISM devices.

ISM devices are equipment or applications designed to generate and use RF energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of telecommunications.

The Amateur-Satellite Service is also permitted in the 2400-2450 MHz band in all ITU regions on a non-harmful interference basis and all countries must ensure that any harmful interference created by amateur-satellite operations is eliminated.

In the United States, unlicensed Part 15 transmitting devices are permitted in the 2400-2483 MHz band on a non-harmful interference basis. These devices are used for a variety of operations including cordless phones, wireless local area networks, and other broadband wireless applications using industry standards protocols such as IEEE 802.11b (so-called "Wi-Fi," wireless fidelity Internet access) and "Bluetooth," a short-range radio networking technology.

Prior to August 10, 1995, the 2400-2402 MHz band was allocated domestically to Federal Government radiolocation operations on a primary basis and to the Amateur Service on a secondary basis with amateur-satellite operations permitted on a non-harmful interference basis.

However, the *Omnibus Budget Reconciliation Act of 1993* (OBRA- 93), identified the 2390-2417 MHz band for transfer from shared use to exclusive non- Federal Government use spectrum.

On November 18, 1999, the FCC adopted a Policy Statement to set forth guiding principles for its spectrum management activities for the new millennium. In considering the bands transferred from Federal Government use, the Policy Statement concluded that the 2400-2402 MHz band should be placed into a spectrum reserve for future applications.



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Specifically, the Policy Statement indicated the band would be reserved until new technologies or other changes would increase the opportunity for new operations and that the Commission would be receptive to petitions for reallocation of the reserved bands.

In response to the Policy Statement, the ARRL filed a Petition for Rule Making in mid-2000, requesting that the FCC upgrade the domestic Amateur Service allocation in the 2400-2402 MHz band from secondary status to primary status and add a primary allocation for the Amateur-Satellite Service.

ARRL said that such an action would ensure continued unfettered access to the 2400-2402 MHz band by the Amateur Service. In support of its request, the League argued that a primary Amateur Service allocation would protect its operations from reallocation or use by an incompatible sharing partner.

The League said that primary allocation status in this range would sustain the overwhelming costs and dedication of time and effort required to keep the amateur-satellite program flourishing, and provide some assurances of future occupancy of the band for the next generation of amateur satellites.

In the NPRM, the FCC said it believed that "...ARRL's request to upgrade the allocation status of the Amateur and Amateur-Satellite Services in the 2400-2402 MHz band has merit. Further, we acknowledge the Amateur Service community's position that it has invested time, effort and money in the development of the Amateur and Amateur-Satellite Services and primary allocations in this band would protect this investment from future allocation requests in the band."

"Similarly, this band is extensively used by unlicensed operations, which have been able to share with amateur radio station use to this point. Because this band is important to unlicensed applications and there is widespread deployment, the removal of such devices would not be feasible."

## Comments

The ARRL, *Radio Amateur Satellite Corporation* (AMSAT) and other amateur radio operators overwhelmingly supported the ARRL/FCC proposals for the 2400-2402 MHz band.

ARRL stated that the proposed upgrade of the Amateur Service to primary status and the addition of a primary Amateur-Satellite Service allocation would protect the existing amateur satellite service operations and provide some assurance of the future availability of this spectrum.

AMSAT added that allocating frequencies at the edge of the ISM band would create a reasonable sharing opportunity for amateurs. AMSAT further pointed out that it expects a technical challenge in dealing with interference from co-located ISM devices such as microwave ovens found in most residences, but that residential operation is intermittent which should minimize occurrences of interference.

The *Amateur Radio Research and Development Corporation* (AMRAD) agreed that the proposed allocation actions would encourage increasing use and investment in amateur satellites.

Both the ARRL and CQ Communications were concerned that the proposal as set forth in the NPRM appears to imply that unlicensed users may have priority over licensed users of this band. CQ argued that licensed services should always have priority over unlicensed operations on the use of the bands involved and it is concerned that the Commission "...appears to be placing the needs of unlicensed services on a par with those of licensed services."

ARRL stated that "...the Amateur Service now has status in the 2400-2402 MHz band and the apparent concern that this proposed allocation change will conflict with Part 15 devices is illogical because Part 15 devices operate without any allocation status and cannot operate when they cause interference to any licensed station."

The IEEE Local and Metropolitan Area Networks Standards Committee (IEEE 802) opposes the proposed primary allocation of the 2400-2402 MHz band for amateur and amateur satellite use. It said that it was concerned that, if the proposed amateur allocations were made, ARRL will attempt to use the new amateur primary status to raise challenges to Part 15 unlicensed operation in the 2400-2402 MHz band.

IEEE 802 suggests that sharing with Part 15 devices could be facilitated by limiting the amateur-satellite operations to the Space-to-Earth direction, as is done on the AMSAT-OSCAR-40 satellite, because aggregate interference from other users in the band could increase the possibility of interference to sensitive receivers on board the satellites.

IEEE 802 also requested that the FCC establish a "safe harbor" for Part 15 devices in the 2400-2402 MHz band similar to that created at 902 MHz. Under this approach, a Part 15 device would, by definition, not be considered to be causing interference if it operates in accordance with the Part 15 rules. IEEE-802 argues that this safe harbor would preclude recurrent challenges from the amateur community, as well as unreasonable assertions of interference to future Amateur Service or Amateur-Satellite Services which may be designed without adequate consideration of other technical uses of the band.

ARRL opposed IEEE 802's "safe harbor" proposal. Calling it "...unnecessary because individual Part 15 devices cannot continue to operate where interference is caused to any licensed station."

The League does not agree that the amateur-satellite allocation should be limited to the downlink direction only because it fails to consider the existing and future satellite operation in this band.

## Decision

The FCC upgraded the existing Amateur Service (but not the Amateur-Satellite Service) allocation at 2400-2402 MHz from secondary to primary status. This



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modification will provide additional protection to the Amateur Service in this band from future licensed operations, FCC said.

"The allocation changes we are making will not alter the interference protection rights among the current users of the band. Even under the current secondary allocation, Amateur Services are entitled to interference protection from Part 15 devices, and ISM devices are entitled to protection from both amateur operations and Part 15 devices. These relationships will remain the same under the Amateur Service primary allocation."

The Commission observed that "...the amateur operators have successfully shared this band with Part 15 and Part 18 operations and we have no reason to believe that this sharing will not continue to be successful. Part 15 devices are limited in power and this interference potential from them is limited to an area very close to their transmit location. We therefore modify our Rules to provide a primary allocation for the Amateur Service (except amateur-satellite service), consistent with our decision here."

The FCC stated their analysis regarding an Amateur-Satellite Service allocation at 2400-2402 MHz differs from the case of terrestrial use in this band.

"The Amateur-Satellite Service currently operates on a non-interference basis to other services under an international footnote and not on a secondary basis as some parties suggest. This means that these operations are on an equal footing with Part 15 devices. As both the amateur and unlicensed proponents recognize, the sensitivity of amateur satellite receivers makes them more vulnerable to aggregate interference from other users in this band. The 2400-2402 MHz band is heavily used by both Part 15 and Part 18 devices, and, unlike terrestrial amateur operations, amateur satellite receivers are at greater risk from aggregate interference."

"We thus conclude that an allocation for the Amateur-Satellite Service would be impractical and difficult to implement, given the protection status afforded ISM devices and the large number of Part 15 devices that operate in the band."

The Commission agreed with the ARRL that unlicensed users do not have protection rights over licensed users in a band. "...it is incorrect when it asserts that we need not consider unlicensed use of this band when deciding whether to modify the allocation. The issue here is whether different uses are compatible and promote efficient use of spectrum. This analysis requires that we consider both licensed and unlicensed use."

"We conclude that, in the 2400-2402 MHz band, the status quo provides the best mix of uses to promote spectrum efficiency. The extensive use of the band to date by Part 15, Part 18 and amateur users under the existing rules supports this conclusion."

"We also conclude that, because we are maintaining the relative allocation status in this band, it is not necessary to implement a "safe harbor" for Part 15 devices. Unlicensed devices operated in accordance with the Part 15 rules should not cause interference to the Amateur

Service, and amateur services can take into account the well known technical characteristics used by unlicensed devices as they operate in the band."

"The Amateur Service and unlicensed devices have successfully shared this band in the past, and we have no reason to conclude that these sharing arrangements will not continue to be successful."

ARRL CEO Dave Sumner said the League was pleased to see 2400-2402 MHz upgraded to primary. "The upgrade of the 2400-2402 MHz amateur allocation to primary provides a seamless primary allocation from 2390 to 2417 MHz, in addition to the secondary allocations of 2300-2310 and 2417-2450 MHz," he said. Amateurs already have been experimenting with high-speed multimedia operation in the band using IEEE 802.11b protocols.

## The new Part 97 Rules

Section 97.303 is amended by revising paragraphs (j)(2)(iii), (j)(2)(iv), and adding new paragraph (s) to read as follows:

### § 97.303 Frequency sharing requirements.

(j)(2)

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(iii) The 2390-2417 MHz segment is allocated to the Amateur Service on a primary basis, and amateur stations operating within the 2400-2417 MHz segment must accept harmful interference that may be caused by the proper operation of industrial, scientific, and medical devices operating within the band.

(iv) The 2417-2450 MHz segment is allocated to the Amateur Service on a co-secondary basis with the Federal Government radiolocation service. Amateur stations operating within the 2417-2450 MHz segment must accept harmful interference that may be caused by the proper operation of industrial, scientific, and medical devices operating within the band.

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(s) An amateur station having an operator holding a General, Advanced or Amateur Extra Class license may only transmit single sideband, suppressed carrier, (emission type 2K8J3E) upper sideband on the channels 5332 kHz, 5348 kHz, 5368 kHz, 5373 kHz, and 5405 kHz. Amateur operators shall ensure that their transmission occupies only the 2.8 kHz centered around each of these frequencies. Transmissions shall not exceed an effective radiated power (e.r.p) of 50 W PEP. For the purpose of computing e.r.p. the transmitter PEP will be multiplied with the antenna gain relative to a dipole or the equivalent calculation in decibels. A half wave dipole antenna will be presumed to have a gain of 0 dBd. Licensees using other antennas must maintain in their station records either manufacturer data on the antenna gain or calculations of the antenna gain. No amateur station shall cause harmful interference to stations authorized in the mobile and fixed services; nor is any amateur station protected from interference due to the operation of any such station.